

REMARKS

Favorable reconsideration of this application is requested in view of the following remarks.

Applicants appreciate the Examiner's courtesy in having the telephone interview on November 23, 2010. The substance of the discussion at the interview is incorporated in the following.

The claim listing includes the revision made in the Amendment and Response filed in October 8, 2010, which was denied entry, and entry of which was requested in the RCE paper. Claim 26 has been amended editorially.

Claims 23-31 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi et al. (U.S. Patent No. 6,989,289) in view of Schmidt (U.S. Patent Application Publication No. 2004/0054041). Applicants respectfully traverse this rejection.

Claim 23 is directed to a capacitor and recites that the capacitor includes a positive electrode of a valve metal, a dielectric of an anodized film formed on the valve metal, and a negative electrode including a composite material in contact with the anodized film. Claim 23 further recites that the composite material of the negative electrode includes a conductive polymer and an ionic liquid that can repair a defect in the anodized film.

The rejection asserts that Schmidt discloses a mixture of the ionic liquid and conductive polymer by citing Mori et al. (JP 10-265674) in paragraph 13 and Fuller et al. (Molten Salt Forum (1998), 5-6 (Molten Salt Chemistry and Technology 5), 605 attached hereto) in paragraph 14 (see pages 2 in "Response to Arguments" and 4-6 in the discussion of claims 28 and 32 of the July 8, 2010 Office Action). The rejection further asserts that Schmidt teaches a method of preparing a layer of the conductive polymer and impregnating the layer of the conductive polymer with the ionic liquid citing Mori in paragraph [0013] and Fuller in paragraph [0014] in the discussion of claim 28 (see *id.* at

pages 4-5). Schmidt, however, is directed to a mixture of non-conductive polymers and ionic liquids for binder and adhesives (see abstract and para. [0047] on page 3) and does not disclose the conductive polymer recited in claim 23.

Fuller, cited in Schmidt in paragraph [0014], discloses an ionic liquid-polymer gel that is a combination of an ionic liquid and a non-conductive polymer, for example poly(vinylidene fluoride)-hexafluoropropylene (PVdF(HFP)) (see page 605, "Introduction" section). Fuller further discloses that the ionic liquid-polymer gel provides high ionic conductivities as well as other properties such as wide electrochemical windows, negligible volatility, etc. and that the ionic liquid-polymer gel offers the same benefits and applications as those the ionic liquid provides (see page 605, "Introduction" section). In Fuller, the ionic liquid provides the ionic conductivities, and the polymer reduces the ionic conductivities of the ionic liquid-polymer gel (see tables 1-2 on pages 606-607, respectively). Fuller, however, fails to disclose inclusion of a conductive polymer in the capacitor as the rejection asserts as discussed above.

Mori, cited in Schmidt (para. [0013]), also discloses a combination of a solid polymer and an ionic liquid (see para. [0008]). Mori further discloses that the ionic conductive polymer could not provide sufficient physical strength and teaches use of a non-ionic conductive polymer, which is different from the conductive polymer recited in claim 23, in the combination (see paras. [0004]-[0005]). Fuller and Mori referred to in Schmidt thus do not disclose the combination of the ionic liquid and conductive polymer as claim 23 recites.

Accordingly, there is no reasonable basis to combine the polymer disclosed in Shiraishi and the ionic liquid disclosed in Schmidt, Mori, and Fuller while the conductive polymer recited in claim 23 is not disclosed in Mori and Fuller as well as Schmidt and the disclosed non-conductive polymers would have properties significantly different from those of the conductive polymer recited in claim 23. Applicants respectfully request that the basis to assume that the polymer disclosed in Mori and/or Fuller is a conductive polymer be included in the Office Action, if the Examiner continues to consider that the polymer disclosed in Mori and/or Fuller is conductive.

Further, as discussed above, Fuller and Mori includes the ionic liquid to obtain ionic conductivities (see page 605, "Introduction" section of Fuller and paras. [0004]-[0005] of Mori). In contrast, in the capacitor of claim 23, by adding the ionic liquid, the anodizing ability of an anodized film on a positive electrode significantly improves, for example from 45 V to 10-30 V at the point A and from 120 V to 30-90 V at point B (see Fig. 1 and table 1 on page 52 of the specification), and consequently, the withstand voltage of the capacitor is also increased, for example from 16 V to 24-38 V (see *id.*, at table 4 on page 59). Such properties obtained by inclusion of the ionic liquid in the capacitor are not disclosed in Mori and Fuller. Thus, there is no reasonable basis to combine the ionic liquid of Mori and Fuller, in which the ionic liquid is disclosed as a material providing the ionic conductivity, with the polymer of Shiraishi and expecting the improved anodizing effect of the ionic liquid, which is even not mentioned in the references. Accordingly, claim 23 and claims 24-31, which ultimately depend from claim 23, are distinguished from Shiraishi in view of Schmidt.

Claim 32 is directed to a method of improving a withstand voltage of a capacitor and recites that the capacitor includes a composite material containing a conductive polymer and ionic liquid, similar to claim 23. Thus, for at least the same reasons as discussed for claim 23 above, claim 32 is distinguished from Shiraishi in view of Schmidt.

Accordingly, this rejection should be withdrawn.

In view of the above, Applicants request reconsideration of the application in the form of a Notice of Allowance.

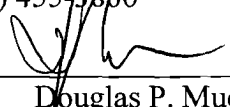


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